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INITIAL STATEMENT OF REASONS

CALIFORNIA CODE OF REGULATIONS

TITLE 8: Sections 3207 and 3212 of the General Industry Safety Orders

Fall Protection for Work Around Skylights

SPECIFIC PURPOSE AND FACTUAL BASIS OF PROPOSED ACTION

Employers who must protect workers exposed to falls through skylights on roofs face obstacles in providing fall protection which include weight limitations, landlord prohibitions on piercing roofs, costs, and feasibility issues. Additionally, seemingly contradictory and confusing language exists in the current regulations for fall protection around skylights. For example, although Section 3212 prohibits the breakage of glass from the deflection of a screen installed above a skylight, the standard is unclear about whether it would allow glass breakage if the screen were placed beneath the skylight. In other situations, employees may wear personal fall protection equipment to arrest a fall, but there are no prohibitions from breaking the skylight glass when a worker falls through the skylight.

Another option for fall protection allows a cover to be placed over the skylight as long as it meets certain strength and labelling requirements. However, current requirements do not clearly address whether skylights that are as strong as covers can serve as fall protection in accordance with the standard.

Advisory committee meetings from August and October, 2014, concluded that more options for fall protection would increase employee safety and afford employers needed flexibility for protecting their employees from falls through skylights, while working within the constraints imposed by roof specifications.

This regulatory proposal is intended to provide worker safety at places of employment in California.

Section 3207. Definitions.

Section 3207 contains definitions for certain terms used in the General Industry Safety Orders (GISO). Although the term “competent person” appears in the GISO regulations, it is not defined in the GISO definitions. The proposed amendment will add the definition of the term as used in the Construction Safety Orders to the GISO definitions. The change is necessary to

clarify that a "competent person" has the same meaning in both the Construction and General Industry Safety Orders, and to ensure that general industry employers assign employees with the level of knowledge and expertise required to perform the work safely.

Section 3212. Floor Openings, Floor Holes and Roofs.

Section 3212 provides protection against falling through openings in the roof or floor. It requires guardrails or covers over all openings, and toe boards if persons may pass below. Subsection (b) requires that covers used to prevent falls through openings "be capable of safely supporting the greater of 400 pounds or twice the weight of the employees, equipment and materials that may be imposed on any one square foot area of the cover at any time." Additionally, the covers must be secured against accidental removal or displacement, and labeled with letters not less than one inch high, which state: "Opening—Do Not Remove." The section also specifies guarding and fall protection requirements for employees working within 6 feet of the edge of a roof or a skylight. The rest of the section addresses work on structures with glazed surfaces such as vaults or canopies.

Subsection (e)(1) addresses skylight screens installed above skylight fixtures. To clarify that the subsection applies only to screens installed above the skylight, the phrase "installed above the skylight" is proposed to be added in the first sentence after the words "Skylight screens". The clarifying language is necessary to differentiate the requirements for screens above the skylight from the requirements for screens below the skylight.

Subsection (e)(2) currently includes requirements for using guardrails to prevent falls through skylights. Current subsection (e)(2) is proposed to be re-designated subsection (e)(3). Subsection (e)(2) is proposed to be replaced with language to address skylight screens installed below the skylight fixture. Because many buildings have screens installed below skylights (sometimes referred to as "burglar bars"), the proposed language is intended to provide specifications for when such screens can be used as fall protection. Screens installed at the same level as the walking/working surface must meet the strength requirements of Section 3212(b), similar to screens installed above the skylight. However, when the screens are installed below the walking/working surface, the strength requirements of subsection (b) must be increased to account for the increased fall distance. Similar to the requirements for designing floor and roof opening covers, as well as other elements of fall protection, a qualified person is required to determine the amount of increased strength necessary. Based upon discussion with stakeholders, only screens installed within 2 feet of the walking/working surface are eligible to be relied upon for fall protection under the proposed amendments. The advisory committee concluded that most screens currently installed below the skylight assembly were well within the 2-feet distance limit. Additionally, a screen installed below a skylight cannot be used for fall protection if the shattered glazing will pose an impalement hazard to an employee lying on top of the screen. Skylight glazing made of tempered, laminated, plastic, or similar materials will not be considered to pose an impalement hazard, as such glazing is specifically designed not to expose a fallen worker to piercing injuries from shards. Finally, the grillwork of the screen below the skylight must be less than 12 inches by 12 inches so that the opening is not considered a "floor opening" as defined in Title 8, Section 3207. Based upon blueprints of "burglar bar" designs discussed in

the advisory committee, the committee determined that grillwork spacing varied from 6- to 12-inches on a side. The advisory committee intended to include all currently installed "burglar bar" installations, meeting the stipulated strength requirements, to be used as protection.

The proposed changes to subsection (e)(2) are necessary to provide increased flexibility to employers in providing protection to employees exposed to falls through skylights. Additionally, allowing the use of burglar bars to serve as fall protection will encourage building owners to install them, passively protecting anyone who may perform work on the roof in the future. The burglar bars will protect employees, even if the employee is unaware of their presence.

Subsection (e)(3) currently addresses the use of personal fall protection for preventing falls through skylights. The subsection is proposed to be re-designated subsection (e)(4).

Current subsection (e)(4) requires that covers placed over skylights meet the requirements of Section 3212(b). The subsection is proposed to be re-designated as subsection (e)(5) and revised to address requirements for the skylight to serve as its own cover. The proposed language clearly indicates that skylights themselves can serve as covers if the employer can obtain documentation from the skylight's manufacturer that the skylight will meet the strength requirements of subsection (b) for the dates that work will be performed in the vicinity of the skylight. Such documentation must be made available upon request.

The proposed changes to subsection (e)(4) are necessary to provide increased flexibility to employers in providing protection to employees exposed to falls through skylights. Additionally, allowing skylights, which have been specifically engineered to maintain their strength capacities over a long period of environmental exposure, to serve as their own cover is necessary to provide incentive to manufacturers to produce and building owners to install such skylights. The presence of such skylights is necessary to protect an employee from falling through the skylight, even if the employee is unaware of the skylight's inherent design characteristics.

The present subsection (e)(5) describes the conditions for using a fall protection plan in lieu of the other available options of fall protection. The subsection is proposed to be re-designated subsection (e)(7) with the following change: Instead of referring to the "fall protection methods as contained in subsections (e)(1 - 4)," the subsection will state "fall protection methods as contained in subsections (e)(1 - 6)." The change is necessary to include the expanded options for fall protection in the subsection's requirements.

A new subsection (e)(6) is proposed to address the use of skylight nets. The proposed subsection will require that the nets meet certain manufacturing and materials requirements based upon the ANSI/ASSE A10.11-2010, "Safety Requirements for Personnel and Debris Nets—American National Standard for Construction and Demolition Operations." The nets are intended to be placed over the top of skylights and will be limited to no more than 12 feet by 12 feet in size. Concerns over the amount of slack in the netting used to catch a fallen worker led to the 12 feet by 12 feet limit. The advisory committee did not want to allow the employee to fall an excessive distance within the net, which could introduce difficulty in retrieving the worker from the net, or increase the likelihood of the worker striking a lower level. Because one of the stakeholders

present at the advisory committee meetings manufactured a 12 feet by 12 feet net, the committee decided to allow those dimensions as a maximum size. In accordance with section 11.1, "Inspection" of the ANSI/ASSE A10.11-2010 standard, the skylight nets must be inspected weekly by a competent person using inspection procedures provided by the manufacturer. A daily visual inspection will be required by an authorized person who has been trained on the manufacturer's inspection procedures before the nets are relied upon for fall protection. The requirement for a daily visual inspection is based upon the recommendation in section 6.1, "Inspection" of ANSI/ASSE Z359.1-2007, "Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components" for a user to inspect fall protection equipment before each use. The word "authorized" is used to describe an employee who has been "selected by the employer for that purpose," as defined in Section 3207, "Definitions." Additionally, as developed by the advisory committee, the proposed amendment will outline specific training requirements; guidelines for the care, maintenance, and storage of the nets; and criteria which mandate the removal of the nets from service. The nets will not be allowed to remain on a skylight for longer than the duration of a job, or one year, whichever is less. Members of the advisory committee agreed that nets should not be left in place on a skylight for an extended period of time, where the net could be abandoned and not properly inspected or maintained. In an effort to balance the need for employers to leave the nets in place for the duration of a job, thus, avoiding unnecessary exposure of employees to falls while installing or removing the nets, the advisory committee agreed upon the 1-year maximum time limit. Finally, employers using the nets will be required to ensure that there is sufficient clearance below the skylight opening to prevent a user's contact with a surface or structure below the skylight.

The addition of subsection (e)(6) is necessary to provide increased flexibility to employers in providing protection to employees exposed to falls through skylights. Furthermore, allowing the use of skylight nets in California is necessary to increase employer compliance with fall protection regulations because the nets are able to be utilized in situations where other forms of fall protection are not.

Existing subsection (e) contains an exception to the requirements of subsections (e)(1) through (e)(4) for tasks of short duration or limited exposure. Employees performing a task that takes less time than installing the safety protections of subsection (e) do not need to comply with subsection (e) "provided that adequate risk control is recognized and maintained." The exception will be revised to clarify that the exception applies specifically to subsection (e) by adding "to subsection (e)" after the word "Exception." Additionally, instead of referring to "the safety devices required in subsections (e)(1) through (e)(4)," the exception will state "the safety devices required in subsections (e)(1) through (e)(6)" to include the newly proposed safety measures.

Other non-substantive or editorial changes have been made as well, which are indicated in the proposed language by strike-out and underline formatting.

The proposed amendments are necessary to clarify existing safety measures and provide additional options to employers seeking to protect employees from falls through skylights on

roofs. The amendments are necessary to increase compliance and provide a safer work environment for employees.

TECHNICAL, THEORETICAL AND/OR EMPIRICAL STUDIES, REPORTS OR DOCUMENTS RELIED ON BY THE BOARD

1. Petition 531, submitted by Bryan Crabb, Executive Director of the California Solar Energy Industries Association, dated October 15, 2012.
2. Division of Occupational Safety and Health Review of Petition 531, dated March 1, 2013.
3. Occupational Safety and Health Standards Board's Proposed Petition Decision on Petition 531, dated April 3, 2013.
4. August 14, and October 22, 2014, Advisory Committee minutes, members rosters, and attendance sheets.
5. American National Standard, American Society of Safety Engineers, ANSI/ASSE A10.11-2010, *Safety Requirements for Personnel and Debris Nets—American National Standard for Construction and Demolition Operations*, approved on November 2, 2010.
6. American National Standard, American Society of Safety Engineers, ANSI/ASSE A1264.1-2007, *Safety Requirements for Workplace Walking/Working Surfaces and Their Access; Workplace, Floor, Wall and Roof Openings; Stairs and Guardrails Systems*, approved on January 18, 2017.
7. American National Standard, American Society of Safety Engineers, ANSI/ASSE Z359.1-2007, *Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components*, approved on May 31, 2007.
8. U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.23, Guarding Floor and Wall Openings and Holes.

These documents are available for review Monday through Friday from 8:00 a.m. to 4:30 p.m. at the Standards Board Office located at 2520 Venture Oaks Way, Suite 350, Sacramento, California.

PETITION

Petitioner: California Solar Energy Industries Association. File No.: 531

The Occupational Safety and Health Standards Board received a petition dated October 15, 2012 to amend Section 3212 of the General Industry Safety Orders contained in Title 8 of the California Code of Regulations regarding requirements for working within six feet of a roof opening or skylight. On April 18, 2013, the Occupational Safety and Health Standards Board granted the petition to the extent that the Petitioner's proposal would be referred to a representative advisory committee for consideration.

A copy of the petition, the Division's evaluation and the Board's petition decision are included as Documents Relied On.

ADVISORY COMMITTEE

This proposal was developed with the assistance of an advisory committee, which met on August 14, 2014 and October 22, 2014. (A list of advisory committee members, attendance sheets, and minutes are included as Documents Relied On.)

FIRE PREVENTION STATEMENT

This proposal does not include fire prevention or protection standards. Therefore, approval of the State Fire Marshal pursuant to Government Code Section 11359 or Health and Safety Code Section 18930(a)(9) is not required.

SPECIFIC TECHNOLOGY OR EQUIPMENT

This proposal will not mandate the use of specific technologies or equipment.

ECONOMIC IMPACT ANALYSIS/ASSESSMENT

The proposed regulation will not have any effect on the creation or elimination of California jobs or the creation or elimination of California businesses or affect the expansion of existing California businesses. Currently, employers have five options for protecting employees working within 6 feet of a skylight or skylight opening. The proposal will add two additional options, making in total seven options available to protect employees. The regulated public has the option of choosing any of the current five options or one of the new options. Since the option of maintaining the status quo exists, no discernable economic impact is anticipated, and nothing in the proposal is expected to create or eliminate jobs connected directly or indirectly with employers whose employees work in proximity to skylights or skylight openings. Furthermore, employers complying with the standard, as written, are required to purchase and maintain fall protection equipment, or materials to fabricate covers, screens, or guardrails as needed. The cost to purchase a skylight net ranges from $200-$400, which, according to participants in the advisory committee meetings, is comparable to the costs to have covers or screens designed to fit around the openings. Installing skylight screens or “burglar bars” under skylights was also determined by the advisory committee to be less expensive and less burdensome than providing guardrails, screens or covers, with the added benefit of protecting the facility against unauthorized building entry and theft.

BENEFITS OF THE PROPOSED ACTION

The proposal promotes worker safety by giving employers increased flexibility for guarding against falls through skylights and skylight openings. Some of the proposed options are more feasible or more cost effective in certain situations than currently available options for fall protection, making an employer more likely to comply with the regulation. Additionally, installing a skylight that meets the strength requirements of a cover without the need for additional protection, or installing a screen underneath the skylight, are passive forms of

employee fall protection that can protect employees from falls even if they are unaware of the presence of the safety measure.

Increases in safety will directly benefit the health and welfare of California residents by reducing workplace injuries and allowing workers to return home to their loved ones after work. The proposed regulation is not expected to affect the environment in any way.

EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT STATEWIDE ADVERSE ECONOMIC IMPACT DIRECTLY AFFECTING SMALL BUSINESSES

The Board has determined that the proposed amendments may affect small businesses; however, no economic impact is anticipated. The proposal gives the regulated public additional options for protecting workers from falls through skylights or skylight openings. However, small business owners are not required to utilize any of the new options for providing protection, though the Board believes that some of the new options may be less expensive and potentially easier to implement than some of the current options. Because the option of maintaining the status quo exists, no economic impact is anticipated. Furthermore, employers complying with the standard, as written, are required to purchase and maintain fall protection equipment, or materials to fabricate covers, screens, or guardrails as needed. The cost to purchase a skylight net ranges from $200-$400, which, according to participants in the advisory committee meetings, is comparable to the costs to have guardrails, covers or screens fabricated to fit around the openings. Installing skylight screens or "burglar bars" under skylights was also determined by the advisory committee to be less expensive and less burdensome than providing other protections, and has the added benefit of protecting the facility against unauthorized building entry and theft.

REASONABLE ALTERNATIVES TO THE PROPOSAL AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES

No reasonable alternatives to the proposal were identified or brought to the Board's attention.